AMENDMENTS TO THE ABSTRACT:

Please delete the entire second paragraph of the abstract stating "(Figure 6.)".

REMARKS/ARGUMENTS

Reconsideration and allowance of this application are respectfully requested. Currently, claims 9-10, 12-33 and 35-38 are pending in this application.

Priority Documents:

Applicant has attached hereto a certified copy of the priority documents. Applicant respectfully requests acknowledgement of the receipt of the certified copy of the priority documents.

Rejections Under 35 U.S.C. §102 and §103:

Claims 9-11, 17-18, 26-33 and 35 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Gupta (U.S. '359). Applicant respectfully traverses this rejection.

For a reference to anticipate a claim, each element must be found, either expressly or under principles of inherency, in the reference. Each element of the claimed invention is not found in Gupta. For example, the claimed element "wherein said at least first and second optical components are flip chip mounted on the shared substrate by means of their bonding surfaces and supported by the shared substrate such that their respective optical confinement regions are optically coupled in use," as required by independent claim 9 and its dependents is not found in Gupta. Similarly, the claimed limitation "the first and second optical components each being flip chip mounted so that its optical confinement region lies between its respective substrate and the shared substrate," as required by independent claim 28 and its dependents is not found in Gupta.

Gupta fails to disclose two separate components being flip chip mounted onto a substrate. Fig. 5 of Gupta shows a laser diode structure which has been grown onto substrate 30. Indeed, col. 3, lines 28-36 of Gupta states the following:

> "A layered laser diode structure 32 is formed on a surface 34 of the substrate 30. Preferably, the laser diode structure is formed by epitaxially forming a plurality of layers of semiconductor material on the substrate, the layers having relatively different impurity types and concentrations. The laser diode structure layers can be **grown** by well known methods such as metalo-organic chemical vapor deposition or molecular beam epitaxy (emphasis added)."

Only waveguide structure 53 is flip chip mounted onto substrate 30 in this embodiment of Gupta. Accordingly, Gupta merely discloses only one component (waveguide structure 53, but not laser diode structure 32) being flip chip mounted.

Optical components have long been fabricated on substrates. There are many and varied epitaxial techniques such as vapor deposition, spin coating, etching and photolithography for creating active devices such as lasers and diodes and passive components such as waveguides. Optical components on a substrate could be positioned with minute accuracy using these techniques.

However, inputs and outputs such as optical fibers to the components could not be fabricated on the substrate but would still have to be aligned somehow for optical coupling. The substrate could then be shaped to provide location for these inputs and outputs. The great accuracy of for example photolithography could then be brought into play in aligning the inputs and outputs for optical coupling to components already fabricated on the substrate.

Instead of just an input or an output, a second component could be mounted into optical alignment with a component fabricated on a substrate, and the substrate would

still be useful in providing accurate alignment. This is what is shown in Gupta. In particular, Gupta uses the technique of flip chip mounting to mount either a planar waveguide 55 into alignment with a laser structure 32 fabricated on the substrate 30, or the other way around. See Figures 5 and 6 of Gupta.

Gupta thus discloses using the existing substrate on which a component is fabricated to provide at least partial location for a second component to be brought into optical coupling with it. However, Gupta fails to disclose two separate components being flip chip mounted onto a substrate.

Accordingly, Applicant respectfully requests that the rejection of claims 9-11, 17-18, 26-33 and 35 under 35 U.S.C. §102 be withdrawn.

Claims 12 and 37 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta and Tada (U.S. '902). Claim 13 was rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta and Tada, and further in view of Glebov (U.S. '508). Claims 14-15 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta in view of Blauvelt et al (U.S. '913, hereinafter "Blauvelt"). Claims 16 and 36 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta and Glebov. Claims 19-22, 24 and 25 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta and Glebov, and further in view of Nashimoto (U.S. '660). Claim 23 was rejected under 35 U.S.C. §103 as allegedly being unpatentable over Gupta, Glebov and Nashimoto, and further in view of Kaneko. Each of these claims depends directly or indirectly from independent claim 9 or 28 and thus the comments made above with respect to Gupta apply equally to these claims. Applicant submits that

none of the cited second, third or fourth references (Tada, Glebov, Blauvelt, Kaneko and/or Nashimoto) resolve the above described deficiencies of Gupta.

For example, Blauvelt teaches strongly against trying to align separate components, and thus teaches away from the claimed invention. In particular, col. 30, lines 43-65 and Fig. 20B (specifically identified by the Office Action) describe how the external-transfer waveguide 2030 and the laser 2010 are constructed. Both are fabricated onto the same substrate 2002, and there is thus no need or question of flip chip mounting or the like. In particular, Blauvelt states, *inter alia*, "Highly precise material processing techniques (such as lithography, deposition, masking, etching, and so forth) may be employed for aligning the external-transfer optical waveguide 2030 to the laser output far more accurately than could be achieved by active alignment of separate components."

Accordingly, Applicant respectfully requests that the rejection under 35 U.S.C. §103 be withdrawn.

New Claim:

New claim 38 has been added to provide additional protection for the invention. New claim 38 relates to an organic-inorganic glass hybrid material which has a particular use in adjusting a distance for flip chip mounted devices. This new claim does not merely relate to the use of an organic-inorganic glass hybrid material in an optical assembly per se as disclosed in Glebov. Again, this claim relates to the particular use of such a material in adjusting distance for flip chip mounted devices. This exploits both the physical and optical qualities of the materials in a particular manner.

Conclusion:

Applicant believes that this entire application is in condition for allowance and respectfully requests a notice to this effect. If the Examiner has any questions or believes that an interview would further prosecution of this application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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By: _____

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